

4.6 HYDROLOGY AND WATER QUALITY

4.6.1 INTRODUCTION

This section describes existing hydrologic conditions at the project site and in its vicinity, and analyzes the potential for the project to affect water quality; groundwater and surface water supplies; groundwater recharge; site drainage; and flooding. Information used to prepare this section was obtained from site visits, the City of Santa Clara General Plan, the Santa Clara Valley Water District (SCVWD) 2005 Urban Water Management Plan, the Santa Clara Water Utility 2005 Urban Water Management Plan (UWMP), and a water supply assessment (WSA) prepared for the project by City of Santa Clara Water and Sewer Utilities. These documents are appended in **Appendix 4.13** to this EIR.

In response to the Notice of Preparation for this Environmental Impact Report (EIR), several comments were received expressing concern about water quality impacts of site runoff on Saratoga Creek and downstream of the creek (e.g., Calabazas Creek and the San Francisco Bay) during the construction and operation of the project. Some comments requested clarification regarding how stormwater runoff would be treated on the site, and how the stormwater runoff would be diverted off of the site. One commenter requested clarification on the source used to determine water demand data that would be used to evaluate water supply. A concern was also expressed as to how the project could impact groundwater, and the relationship between stormwater runoff diverted into the storm drain system and groundwater supply. These scoping comments are addressed in the impact assessment presented below.

4.6.2 ENVIRONMENTAL SETTING

The discussion below describes existing surface and groundwater conditions on the project site and in its vicinity, concentrating primarily on aspects that are specific to the project site.

4.6.2.1 Surface Water Hydrology

Regional Climate and Drainage

The City of Santa Clara lies within the Santa Clara Valley, located at the southern end of the San Francisco Bay. The Santa Cruz Mountains and Diablo Mountain Range form the western and eastern boundaries of the valley, respectively. The valley has a Mediterranean climate, with warm, dry summers and cool, wet winters. Annual precipitation in the valley occurs from November through March and ranges from 14 inches on the valley floor to 45 inches along the crest of the Santa Cruz Mountains.

Surface runoff originates primarily from precipitation from winter storms in the valley and surrounding mountains. Snow falls a few times a year on the highest ridges of the Santa Cruz Mountains and snowmelt is a minor source of surface runoff. Runoff from the valley drains into the San Francisco Bay, located at the northern boundary of the valley. Historically, flooding has occurred within the northern portion of the valley as a result of proximity to the San Francisco Bay, low elevation, and land subsidence due to groundwater withdrawals. The SCVWD manages flood control and groundwater recharge within Santa Clara County and implements several programs designed to address those issues.

Local Drainage

The project site is located within the 85-acre West Valley Watersheds area, which contains 16 creeks that drain into the San Francisco Bay. The West Valley Watersheds is an area of multiple small creek watersheds and is characterized by channelized creeks on the valley floor with natural streams in the hillside areas. The City storm drain system conveys stormwater to the channelized creeks within the City, which then direct flow to the San Francisco Bay via SCVWD infrastructure. The City storm drain system consists of curb inlets that allow stormwater to flow into a series of pipelines within City roadways. Stormwater is conveyed via the underground pipelines to the channelized creeks within the City.

The closest creek to the project site is Saratoga Creek, which is located just south of the site. Runoff from the project site does not enter directly into Saratoga Creek, but is collected in a series of on- and off-site storm drain lines, and then discharged approximately 1,000 to 1,500 feet east into Saratoga Creek. Portions of the storm drain system currently serving the project site include parallel 12-, 15-, and 24-inch-diameter storm drains located under Kaiser Drive. The 12- and 15-inch-diameter storm drains connect to an 18-inch-diameter storm drain in Kiely Boulevard and then connects to a 27-inch-diameter storm drain, and travels through part of Central Park before discharging into Saratoga Creek. The 24-inch-diameter storm drain continues across Kiely Boulevard through part of Central Park and connecting to a 27-inch-diameter storm drain before discharging into Saratoga Creek.

Flood Hazards

The project site is outside the hazard area of the 100-year flood event of Saratoga Creek. This is demonstrated in Figure 5-E, 100-Year-Flood Hazard Zone, of the Environmental Quality Element of the City of Santa Clara General Plan, which indicates that the project site is outside of the 100-year flood hazard zone. However, the project site is located within Zone X on the applicable flood insurance rate map (FIRM) prepared by the Federal Emergency Management Agency (FEMA). Zone X applies to areas that are between the 500-and 100-year floodplains and areas that are subject to average depths of less than 1 foot during 100-year flood events.

Water Quality

Water quality in Saratoga Creek is heavily influenced by upstream urban runoff from surrounding developed areas. Runoff from streets, parking lots, yards, storage areas, roofs, sidewalks, and other urban features are conveyed by storm drains into the creek. The San Francisco Bay Regional Water Quality Control Board (San Francisco Bay RWQCB) manages water quality within the region through the Water Quality Control Plan (WQCP), the master water quality control planning document for the San Francisco Bay RWQCB. The WQCP designates beneficial uses and water quality objectives for waters of the state and includes programs to achieve water quality objectives. Objectives for 22 water quality parameters such as bacteria levels and dissolved oxygen are included in the WQCP. The State of California is required by Section 303(d) of the Clean Water Act (CWA) to provide the United States Environmental Protection Agency (US EPA) with a list of water bodies considered by the state to be impaired (i.e., not meeting water quality standards and not supporting their beneficial uses). Saratoga Creek is not included on the 2006 303 (d) list of impaired water bodies. The area of the San Francisco Bay that receives stormwater runoff from the project site, San Francisco Bay, South, is included on the 303(d) list for several contaminants including pesticides, metals, exotic species, and polychlorinated biphenyls (PCBs).

Groundwater Hydrology

The City of Santa Clara is underlain by the Santa Clara Valley Subbasin, the largest of three interconnected groundwater basins in Santa Clara County. The Santa Clara Valley Subbasin is approximately 22 miles long and narrows from a width of about 15 miles near the northern boundary of Santa Clara County to approximately 0.5 mile at the Coyote Narrows, where the Santa Cruz Mountains and Diablo Mountain Range nearly converge. The subbasin is bordered by the Santa Cruz Mountains to the west and Diablo Mountain Range to the east and covers 225 square miles (SCVWD 2005).

The other two subbasins are the Coyote and Llagas subbasins. The three subbasins contain young alluvium underlain by Santa Clara Formation. Both the alluvium and Santa Clara Formation consist of gravel, sandy gravel, gravel and clay, sand, and silt and clay. Coarser material is found along elevated lateral edges and the flat interiors of the subbasins are primarily thick silt and clay sections with smaller beds of clean sand and gravel. The groundwater basins are recharged through percolation of runoff, direct precipitation, subsurface inflow, and artificial recharge. Groundwater recharge is managed by the SCVWD through 18 recharge systems that include over 70 off-stream ponds and more than 30 local creeks. The total recharge capacity of these systems is approximately 138,000 acre-feet/year (SCVWD 2005).

Potable Water Service

The City of Santa Clara Water and Sewer Utilities (CSC) provides municipal water service to all areas within the City of Santa Clara. The CSC water supply includes local groundwater, imported water from the SCVWD, imported water from the San Francisco Public Utilities Commission (SFPUC) Hetch Hetchy Regional Water System (Hetch Hetchy System), and recycled water from South Bay Water Recycling (SBWR). The predominant source of potable water is local groundwater extracted from City-owned and operated wells. The most recent data on groundwater as a percentage of overall supply in the City of Santa Clara is from 2004 and indicates that 59.6 percent of the overall water supply was met by local groundwater resources. The project site is located in Pressure Zone 2 which is the southern portion of the City and served by a blend of well water and SCVWD-treated surface water. This blend is composed of approximately 60 percent well water and 40 percent treated surface water (City of Santa Clara 2005).

Local Groundwater

As stated earlier, the City of Santa Clara is underlain by the Santa Clara Valley Subbasin, the largest of three interconnected groundwater basins in Santa Clara County. Groundwater recharge is managed by the SCVWD, which estimates that the operational storage capacity of the Santa Clara Valley Subbasin is 350,000 acre-feet with an estimated annual withdrawal limit of 200,000 acre-feet. The Santa Clara Valley Subbasin is not adjudicated. The allowable withdrawal or safe yield of groundwater by the City of Santa Clara is dependent on several factors including: withdrawals by other water agencies, quantity of water recharged and the carry over storage from the previous year. The SCVWD estimates the carryover storage in April of every year when the quantity of imported water available to the SCVWD by contract and the local water yield can be estimated fairly accurately. Based on the calculated carryover capacity and the anticipated customer demands, the SCVWD reviews and modifies its groundwater management strategy in order to maintain adequate water in the basin to avoid subsidence (City of Santa Clara 2008). The most recent information from the California Department of Water Resources indicates that the Santa Clara Valley Subbasin is not in a state of overdraft, and the information from the SCVWD indicates that the groundwater levels are rising (City of Santa Clara 2008).

Groundwater Wells

The City's groundwater wells are strategically distributed around the City. This distribution of wells adds to the reliability of the water system and minimizes the possibility of localized subsidence due to localized over-drafting. The 2005 UWMP contained a detailed analysis of the historic pumping rates and the depth to water at each well. Minor seasonal fluctuations in the depth to water were noted in the analysis but there is no evidence of declining water table or over-drafting; in fact, as stated above, groundwater levels have been rising (City of Santa Clara 2008).

The City has well capacity that is not currently being used. The CSC analyzes the capacity of the wells by dividing the actual groundwater production by the theoretical groundwater production if all wells were run at their rated capacity. This calculation yields a “utilization factor” which approximates the percentage of time the wells are run or the percentage of the total groundwater production capacity that is utilized. The utilization factor for the City’s wells is currently 25 percent with several wells being used at less than 10 percent of their rated capacity. The SCVWD has not determined a resource limit to the City’s use of groundwater; rather the SCVWD represented that it has sufficient quantities of water supply for the overall water requirements as stated in the City’s 2005 UWMP (City of Santa Clara 2008).

The City of Santa Clara has historically pumped between 20,533 acre-feet and 14,513 acre-feet/year from the groundwater basin in the past 10 years. The historic high for groundwater utilization occurred in 1997 (City of Santa Clara 2008).

Groundwater Quality

As mandated by the State of California, the City completed a Source Water Assessment Program in 2002 that included a detailed review of all potential sources of contamination at the 27 drinking water wells within the City. This analysis found that the groundwater quality at 20 drinking water wells meets or exceeds all state and federal regulations for drinking water. Groundwater extracted from 20 of the 27 drinking water wells is not treated prior to delivery since the groundwater meets all state and federal drinking water standards upon extraction. Six wells within the City show nitrate concentrations that exceed water quality standards and one well that exceeds the standard for manganese levels. Water from these wells is not used for potable water supply.

Imported SCVWD Surface Water

The SCVWD is an independent special district that supplies potable water to areas throughout Santa Clara County. Sources of water supplied by the SCVWD include groundwater from the Santa Clara Valley, Coyote, and Llagas Subbasins; and surface water from the Central Valley Project and State Water Project.¹ The SCVWD also provides recycled water for landscape irrigation and commercial and industrial uses within the Santa Clara County.

¹ The Central Valley Project (CVP) is a water storage and transport system operated by the US Bureau of Reclamation that provides water supply to the Central Valley and Bay Area. The CVP includes 22 reservoirs with a combined storage of 11 million acre-feet. The State Water Project (SWP) is a water and power development and conveyance system that includes reservoirs, lakes, storage tanks, canals, tunnels, and pipelines to convey water from the Feather River to 29 water agencies. The SWP has a storage capacity of 5.8 million acre-feet.

Imported SFPUC Surface Water

Water supplied by the SFPUC is obtained from the Tuolumne River watershed in the Sierra Nevada Mountains, Calaveras and San Antonio Reservoirs in Alameda and Santa Clara counties, and Crystal Springs Reservoir on the San Francisco Peninsula. This supply is delivered via the Hetch Hetchy System. The Bay Division Pipelines is a branch of the Hetch Hetchy System that traverses the northern portion of the City of Santa Clara and delivers potable water to areas of the City north of US Highway 101. Contracts between the City of Santa Clara and the SFPUC limit water delivery from the Hetch Hetchy System to 6.57 million gallons per day (mgd). Currently, the City obtains an average of 4.9 mgd or 5,500 acre-feet/year from the Hetch Hetchy System (City of Santa Clara 2005).

Recycled Water

Recycled water within the City is supplied by SBWR, a part of the San Jose/Santa Clara Water Pollution Control Plant (WPCP). The plant treats wastewater in compliance with California Administrative Code Title 22 Division 4 requirements for unrestricted use, which allows for the use of recycled water (treated effluent) in landscape irrigation, industrial processes, and some commercial uses within specific guidelines. The predominant use of recycled water in the City is landscape irrigation, particularly in large turf areas such as golf courses, parks, and schools. Recycled water is also currently used in industrial processes, cooling towers, and toilet flushing in dual-plumbed buildings. In the 2004 through 2005 fiscal year, recycled water use in the City was 2,480 acre-feet, or 9.6 percent of the overall City water demand (City of Santa Clara 2005).

As noted in the 2205 UWMP, there is ample capacity with the recycled water system. The San Jose/Santa Clara Water Pollution Plant currently produces in excess of 100 million gallons per day of water that meets recycled water standards; however, system-wide recycled water sales are approximately 10 million gallons per day.

4.6.3 REGULATORY CONSIDERATIONS

This section describes the local, state, and federal regulatory context to be considered for the proposed project.

4.6.3.1 Federal Pollution Control Act

The Federal Pollution Control Act, commonly known as the Clean Water Act (CWA), was originally enacted in 1948. The primary purpose of the act is restoring and maintaining the chemical, physical, and biological integrity of the nation's water in order to achieve a level of water quality that provides for

recreation in and on the water and the propagation of fish and wildlife. Section 208 of the CWA and the requirements of the Code of Federal Regulations require local water management plans. Preparation of these water management plans has been delegated to the individual states by the US EPA, which is charged with implementing the CWA.

The project site is located within the southern portion of the 2.9-million-acre San Francisco Bay Basin, which is governed by the San Francisco Bay RWQCB, also known as Region 2. The San Francisco Bay RWQCB has adopted a Basin Plan in accordance with criteria contained in the California Porter-Cologne Water Quality Control Act, the CWA, and other pertinent state and federal rules and regulations. The intent of the Basin Plan is to provide definitive guidelines and give direction to the scope of San Francisco Bay RWQCB activities that will optimize the beneficial uses of the state waters within the San Francisco Bay Basin by preserving and protecting the quality of these waters. The intended beneficial use of water determines the water quality objectives. For example, drinking water has to be of higher quality than the water used to irrigate pastures. Both of these are beneficial water uses, but the quality requirements for irrigation water are different from those for drinking water.

The San Francisco Bay RWQCB implements the Basin Plan by issuing and enforcing waste discharge requirements for appropriate persons and groups; these can include individuals, communities, or businesses whose waste discharges may affect water quality. These requirements can be either State Waste Discharge Requirements for discharge to land, or federally delegated National Pollutant Discharge Elimination System (NPDES) permits for discharges to surface water. Dischargers are required to meet water quality objectives and, thus, protect beneficial uses. Two types of approvals must be obtained from the San Francisco Bay RWQCB for this project, including coverage under the General Construction Permit and NPDES Permit No. CAS0299718. Additional information regarding these approvals is summarized below under subsection National Pollutant Discharge Elimination System.

4.6.3.2 Total Maximum Daily Load – Section 303(d) of the Clean Water Act

The State of California is required by Section 303(d) of the CWA to provide the US EPA with a list of water bodies considered by the state to be impaired (i.e., not meeting water quality standards and not supporting their beneficial uses). The list also identifies the pollutant or stressor causing impairment, and establishes a schedule for developing a control plan to address the impairment, typically a total maximum daily load (TMDL). The TMDL specifies the amount of the target pollutant that the water body can sustain on a daily or annual basis and is established by amending the water quality control plan. TMDLs are prepared by the RWQCBs and result in amendments to WQCP which must be approved by the US EPA. The 303(d) list is used by the US EPA to prepare the biennial federal CWA Section 305(b) Report on Water Quality. Saratoga Creek is not included on the 2006 303(d) list. The area of the San

Francisco Bay that receives stormwater runoff from the project site, San Francisco Bay, South, is included on the 303(d) list for several contaminants including pesticides, metals, exotic species, and PCBs.

4.6.3.3 California Porter-Cologne Act

The California Porter-Cologne Act of 1970 is largely responsible for creating the state's extensive regulatory program for water pollution control. As discussed above, preparation of water management plans has been delegated to the individual states by the US EPA. Pursuant to the Porter-Cologne Act, the responsibility for protection of water quality in California rests with the State Water Resources Control Board (SWRCB). The SWRCB in turn has delegated the regulation of the hydrologic basin to nine Regional Water Quality Control Boards to regulate the nine hydrologic basins in the state. The Porter-Cologne Act gives the SWRCB and Regional Water Quality Control Boards broad powers to protect water quality by regulating waste discharges to water and land and by requiring cleanup of hazardous conditions.

4.6.3.4 EPA California Toxics Rule

The US EPA has developed water quality criteria for priority toxic pollutants and other provisions for water quality standards to be applied to inland surface waters, enclosed bays, and estuaries in the state of California. This rule was developed to address a gap in California's water quality standards that was created when the state's water quality control plans containing water quality criteria for priority toxic pollutants was overturned in 1994. The established numerical standards were deemed necessary to protect human health and the environment. The rule includes ambient aquatic life criteria for 23 priority toxic pollutants, ambient human health criteria for 57 priority toxics, and a compliance schedule.

4.6.3.5 National Pollutant Discharge Elimination System

The US EPA has delegated management of California's NPDES program to the SWRCB and the nine regional board offices. The NPDES program was established in 1972 to regulate the quality of effluent discharged from easily detected point sources of pollution such as wastewater treatment plants and industrial discharges. The 1987 amendments to the CWA [Section 402(p)] recognized the need to address nonpoint-source stormwater runoff pollution and expanded the NPDES program to operators of municipal separate storm sewer systems (MS4s), construction projects, and industrial facilities.

Construction

The SWRCB administers the NPDES General Permit for Discharges of Stormwater Runoff Associated with Construction Activity (General Construction Permit). A notice of intent must be submitted to the

SWRCB prior to the beginning of construction for projects disturbing 1 acre or more of land to be covered under the General Construction Permit. The General Construction Permit requires that a Stormwater Pollution Prevention Plan (SWPPP) be developed, identifying potential sources of pollution and specifying runoff controls during construction for the purpose of minimizing the discharge of pollutants in stormwater from the construction area. In addition, the SWPPP must identify post-construction control measures and a monitoring plan.

Municipal

The City of Santa Clara is a participating agency, or co-permittee, to the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). The City, along with 12 cities and towns in the valley and the SCVWD, share NPDES Permit No. CAS0299718 (Order No. 01-024). The SCVURPPP is designed to reduce pollution discharged into the South San Francisco Bay to the maximum extent practicable and includes regulatory, monitoring, and outreach measures. Since the first five-year permit was issued by the San Francisco Bay RWQCB in 1990, the SCVURPPP has successively implemented a series of comprehensive stormwater management plans for urban runoff management meeting regional board standards.

When the permit was renewed in 2001, the San Francisco Bay RWQCB included new design standards for runoff treatment control measures (Provision C.3) from new development and significant redevelopment. The reissued permit also required development of a Hydrograph Modification Management Plan (HMMP) to manage increased peak runoff flows and volumes (hydromodification) and avoid erosion of stream channels and degradation of water quality caused by new and redevelopment projects (Provision C.3.f).

4.6.3.6 Local Plans and Policies

City of Santa Clara Municipal Code

Chapter 13.20, Storm Drains and Discharges, of the Santa Clara Municipal Code regulates unauthorized discharges into local watercourses. The ordinance describes materials and substances that are not permitted for discharge within the city storm drain system, monitoring requirements that the City may impose if necessary to maintain water quality, required procedures in the event of an accidental discharge, enforcement actions for non-compliance, and the City storm drain environmental compliance fee, which is charged monthly to those connected to the storm drain system.

4.6.4 IMPACTS AND MITIGATION MEASURES

4.6.4.1 Significance Criteria

The impact of the proposed project on hydrology and water quality would be considered significant if it would exceed the following standards of significance, in accordance with Appendix G of the *California Environmental Quality Act (CEQA) Guidelines*:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Cause inundation by seiche, tsunami, or mudflow.

4.6.4.2 Issues Not Discussed Further

The project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam, because the project site is not within an area downstream of a dam or levee. The project site is located outside of the San Francisco Bay tsunami evacuation area and outside the 100-year flood zone for Saratoga Creek as defined by FEMA. Therefore, the project would not place any housing within a 100-year flood hazard or redirect flood flows. These issues are not discussed further in this section.

4.6.4.3 Methodology

Project impacts are evaluated using the above standards of significance and information on site drainage, the city storm drain system, and local water supply. Pre- and post-project stormwater runoff volumes were calculated by BORM Engineering. BORM Engineering also prepared a site-specific drainage plan in adherence with the Santa Clara Public Works Department requirements for storm drainage. The project drainage plan identified the size and location of the stormwater collection pipes as shown in **Figure 3.0-10, Conceptual Utility Plan in Chapter 3.0, Project Description** of this EIR. The CSC prepared a water supply assessment for the proposed project which is attached as **Appendix 4.6** of this EIR. These sources of information, along with UWMPs prepared by the CSC and SCVWD were used to evaluate whether the project impacts would exceed the standards of significance listed above.

4.6.4.4 Project Impacts and Mitigation Measures

Impact HYDRO-1: Development of the project would not substantially degrade the quality of water in Saratoga Creek. (*Less than Significant*)

Degradation of surface water quality could occur during the construction and operational phases of the project. Surface water impacts could result from pollutants and/or sediment entering Saratoga Creek or the city storm drain system. As discussed above, the San Francisco RWQCB defines beneficial uses of Saratoga Creek in the Basin Plan that include agricultural supply, cold freshwater habitat, freshwater replenishment, groundwater recharge, water contact recreation, non-contact water recreation, and warm freshwater habitat. A significant impact to surface water quality would occur if runoff from the project site would substantially degrade water quality in Saratoga Creek or result in a violation of San Francisco Bay RWQCB standards due to pollutant and/or sediment content.

Project Construction

Proposed construction and grading activities would involve demolition of existing structures, removal of asphalt, site grading, and the operation of heavy equipment. Although the project site is essentially flat and the potential for soil erosion is considered to be low, peak stormwater runoff could result in short-term sheet erosion within areas of exposed or stockpiled soils. Furthermore, the compaction of soils by heavy equipment may reduce the infiltration capacity of soils and increase runoff and erosion potential. Given the above, pollutants such as soil, sediments, and other substances associated with construction activities (e.g., oil, gasoline, grease, and surface litter) could enter the local storm drain system, which eventually conveys runoff into Saratoga Creek.

Projects disturbing areas of 1 acre or more during construction are required to comply with the NPDES General Construction Permit. The project construction contractor would be required to file a notice of intent under the state's NPDES General Construction Permit (CAS00002). This permit requires that a SWPPP be prepared that would develop best management practices (BMPs) to reduce erosion of disturbed soils. In addition, the SWPPP would require that if any spills of materials known to be water pollutants or hazardous materials do occur, the proper agencies would be contacted immediately (if necessary) and appropriate cleanup of the spill would take place as soon as possible. BMPs that would be implemented during site grading and construction would include the use of straw hay bales, straw bale inlet filters, filter barriers, and silt fences. The project would be also required to comply with the City Storm Drains and Discharges ordinance and incorporate the BMPs outlined in the California Stormwater Quality Association (CASQA) *Stormwater Best Management Practices for Construction*, January 2003 edition. A SWPPP would be prepared by the project applicant and submitted to the City of Santa Clara Public Works Department for approval prior to issuance of a grading permit. Adherence to the requirements described above would ensure that the project would not substantially degrade water quality in Saratoga Creek. Given the above, the implementation of the project would have a less-than-significant short-term impact on water quality during construction.

Project Operation

During project operation, potential project impacts on surface water quality could result from the discharge of pollutants generated by motor vehicle use on project roadways and the use of herbicides and pesticides in the maintenance of landscape areas. Stormwater quality is generally affected by the length of time since the last rainfall, rainfall intensity, urban uses of the area, and quantity of transported sediment. Typical urban water quality pollutants usually result from motor vehicle operations, oil and grease residues, fertilizer/pesticide uses, human/animal littering, careless material storage and handling, and poor property management. The majority of pollutant loads are usually washed away during the first flush of the storm occurring after the dry season. Street- and parking-lot-generated pollutants typically contain atmospheric pollution, tire-wear residues, petroleum products, oil and grease, fertilizer and pesticide wash offs, and industrial chemical spills, as well as animal droppings and litter types of wastes. These pollutants have the potential to degrade water.

Stormwater runoff from the project site after project buildout would be conveyed via the proposed on-site storm drain system to the existing off-site city storm drain pipelines for discharge into Saratoga Creek, upstream from the project site. Runoff from the project site would not be conveyed directly into the area of Saratoga Creek that is adjacent to the project site. The proposed on-site drainage system would consist of 12-, 15-, and 18-inch storm drain lines located throughout the project site (see **Figure 3.0-10, Conceptual Utility Plan**). All stormwater runoff on the site would be collected

through these drain lines and carried to the city's existing 24-inch storm drain line in Kaiser Drive. The 24-inch line in Kaiser Drive would convey flows to the existing 24-inch storm drain in Kiely Boulevard, which travels easterly and outfalls approximately 2,000 feet east into Saratoga Creek.

Prior to discharge into the City storm drain system, stormwater runoff would be treated on-site with landscaped-based measures including, flow through planters, infiltration, bio-swales and bio-retention. All roof and patio drainage would be routed to and/or through landscape base treatment, and all stormwater runoff from the streets would be routed to the bio-retention facilities. The proposed stormwater bioswales and landscape filtration systems would remove pollutants from on-site runoff prior to entering the City's public drainage system. The system would remove pollutants through the sedimentation of solids and the filtration and trapping of pollutants by soils and vegetation. These are common practices recommended and accepted by the SWQCB to reduce pollutants in receiving waters in order to meet water quality standards established in the CWA. The proposed project is also subject to the County-wide NPDES permit and SCVURPPP. As stormwater runoff would be filtered on site prior to discharge into the city storm drain system and the project would be required to comply with the County-wide NPDES permit and SCVURPPP, the proposed project would not substantially degrade water quality in Saratoga Creek. Given the above, the project would result in a less-than-significant long-term impact to water quality.

Mitigation Measures: No mitigation measures required.

Impact HYDRO-2: Development of the project would not substantially deplete groundwater such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. (*Less than Significant*)

The proposed project falls within the definition of a project requiring a WSA under the California Water Code Section 10912(a)(3). In accordance with this requirement, the City of Santa Clara CSC prepared a WSA for the project (see **Appendix 4.13**). The WSA calculated the water demand for 812 residential units. Since the preparation of the WSA, the number of residential units proposed for the project has decreased to 806. Therefore, the water demand presented in the WSA for the project is slightly higher than what it would be for 806 units. Nonetheless, this EIR bases its evaluation of water demand for the project on 812 units.

As estimated in the WSA, these residential units would generate an annual demand of approximately 208.7 acre-feet/year. In addition, the project would require water for irrigation of approximately 5 acre of open space². The estimated irrigation water demand is 197.4 acre feet/year. Therefore, the total water

² Approximately 5 acres of open area on the project site would include landscape, impervious surfaces.

demand for the project at buildout is estimated to be 406.1 acre-feet/year or 0.36 million gallons per day (mgd).

The WSA considered the historic water use associated with the Kaiser facility because the UWMP adopted by the City in November 2005 included the water use at the hospital site in its demand projections. As the hospital site (including the three buildings that are still occupied) had a historic usage of 122.5 acre-feet/year, the WSA calculated the additional water that would be needed at the site once the project is constructed and fully occupied. The net new water that would be needed is calculated to be 283.6 acre-feet/year.

Table 4.6-1, Net Project Water Demand, summarizes the project water demand as provided by the CSC in the WSA.

**Table 4.6-1
Net Project Water Demand**

	Acre- feet/year	Million gallons/day
Proposed Project	406.1	0.36
Kaiser Permanente Facility	122.5	0.16
Net Project Demand	283.6	0.21

Source: City of Santa Clara Water Utility, Water Supply Assessment for the Proposed Development at 900 Kiely Boulevard 2008.

The proposed project would connect to the recycled water system to allow for landscape irrigation with recycled water. The proposed landscaping irrigation system would be required to meet water conservation requirements contained in the City of Santa Clara Water Service and Use Rules and Regulations. Therefore, the 197.4 acre feet/year of water demand to irrigate the open space could be met using recycled water. The planned recycled water main and distribution system (see description in **Section 3.0, Project Description**) that would serve the site has been adequately sized and designed to meet this demand. The construction of the recycled water main is scheduled to be completed in 2009. If the open space on the site is irrigated with recycled water, the net increase in potable water usage for the project would be 86.2 acre-feet/year. However, since recycled water is not yet available to the project, the WSA conservatively evaluated the ability of the City's water supply to serve the project's net increase in water demand of 283.6 acre-feet/year.

In addition to the water needed to serve the proposed project, the WSA estimated the additional water that would be needed to serve other planned projects in the City that were not previously included in the City's demand projections in the CSC 2005 UWMP. These projects, along with the Gallery at Central Park project, would generate an additional demand for approximately 800 acre-feet/year between 2010 and 2015. If this incremental water demand is compared to the additional water demand already accounted for in the CSC 2005 UWMP for the same period (about 1,573 acre-feet/year), the demand due to the project and other planned projects that would be completed between 2010 and 2015 is lower than the projected increase in the CSC 2005 UWMP. Therefore, adequate water for currently projected growth, including the proposed project, is planned for in the CSC 2005 UWMP and the project would not result in a demand for water that is not anticipated in the CSC 2005 UWMP. In fact, as the numbers above show, the currently projected growth in water demand, including the demand associated with the proposed project, would require about half of the water that has been planned for by the City. Furthermore, according to the CSC, the current overall water sales within the City are lower than the amount projected in the CSC 2005 UWMP. For instance, the CSC 2005 UWMP projected a demand for 29,683 acre-feet of water for 2007. However the actual water sales in 2007 totaled approximately 27,283 acre-feet/year, approximately 2,400 acre-feet less than projected. All of the above indicates that the CSC 2005 UWMP potentially overstates the projected demand for water.

Based on the projected demand, the CSC 2005 UWMP projects the total amount of groundwater that would be pumped from the City wells to serve the demand. **Table 4.6-2, Average of Groundwater Projected to be Pumped in Acre-Feet**, shows the amount of groundwater that is expected to be pumped by the City and the percentage of groundwater to the total water supply for the City through 2030. Because the water demand associated with the project is captured by the demand projections in the CSC 2005 UWMP, there would be no increase in the amount of groundwater that would be pumped above the amount already included in the plan. These amounts, shown in **Table 4.6-2**, are within the historic groundwater pumping rates for the City. As noted earlier, the City of Santa Clara has historically pumped between 14,513 acre-feet and 20,533 acre-feet per year from the groundwater basin in the past 10 years. These rates of groundwater withdrawal have not result in a decline in groundwater levels. The most recent information from the California Department of Water Resources indicates that the Santa Clara Valley subbasin is not in a state of overdraft, and the information from the SCVWD indicates that the groundwater levels are actually rising.

Table 4.6-2
Amount of Groundwater Projected to be Pumped in Acre-Feet

Year	Projected Groundwater (acre feet)	Percent of Total Water Supply
2010	16,298	51.1 %
2015	17,257	52.3 %
2020	18,346	53.7 %
2025	19,340	55.0 %
2030	20,387	56.2 %

Source: City of Santa Clara Water Utility, Urban Water Management Plan 2005.

In summary, the water demand associated with the proposed project and other planned projects is well within the demand projections included in the CSC 2005 UWMP, and would not exceed previous estimates. Therefore the City is expected to withdraw groundwater at rates indicated in its CSC 2005 UWMP and is not expected to pump groundwater at a higher rate to serve the project and other planned growth. The rates of withdrawal shown in **Table 4.6-2** are anticipated and planned for both in the City's CSC 2005 UWMP and in the SCVWD's UWMP and are not expected to result in a decline in groundwater levels. Furthermore, the groundwater subbasin is actively managed by the SCVWD. The quality, supply, and management of the local groundwater basin is monitored by the SCVWD and summarized in Appendix E, Groundwater Management Plan of the SCVWD UWMP. This plan protects groundwater quality, monitors the groundwater extraction, and promotes groundwater recharge to ensure that groundwater does not exceed the annual 200,000 acre-feet withdrawal limit for the basin. The allowable withdrawal or safe yield of groundwater by the City of Santa Clara is determined based on several factors including: withdrawals by other water agencies, quantity of water recharged and the carry over storage from the previous year. The SCVWD estimates the carryover storage in April of every year when the quantity of imported water available to the SCVWD by contract and the local water yield can be estimated fairly accurately. Based on the calculated carryover capacity and the anticipated customer demands, the SCVWD reviews and modifies its groundwater management strategy in order to maintain adequate water in the basin to avoid subsidence (City of Santa Clara 2008).

All of the analysis above assumes no use of recycled water on the project site. If recycled water is used, the project's contribution to the total demand for groundwater would be smaller and its effect on groundwater pumping would be even smaller. Based on the above, the project would not cause the lowering of the local groundwater table or a net deficit in the subbasin volume. This impact is considered less than significant.

Mitigation Measures: No mitigation measures required.

Impact HYDRO-3: Development of the project would not substantially interfere with groundwater recharge and would not substantially degrade groundwater quality. (*Less than Significant*)

The project site was formerly occupied by a Kaiser facility, and approximately 85 percent of the site is covered by impervious surfaces. The remaining 15 percent of the project site is covered with landscaped areas that are pervious to water infiltration. The majority of the stormwater at the site is collected as runoff in the local storm drain system rather than percolating through the ground surface. The project site is not located within a groundwater recharge area and, therefore, the current impervious character of the site does not impede groundwater recharge in the Santa Clara Valley Subbasin (SCVWD 2005).

The proposed project would redevelop the project site with impervious surfaces, with the exception of 9 acres of open space. Upon project completion, approximately 66 percent would be impervious and 34 percent pervious. Therefore, the pervious area on the project site would increase after project development, allowing more water to infiltrate on the site than under the existing condition. As the project site is not located within a groundwater recharge area and the pervious area on the project site would increase after project development, the project would not interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Therefore, the project would have a less than significant impact on the groundwater table.

Groundwater quality impacts generally occur when leaks or spills of hazardous materials occur at industrial facilities or other land uses that store and use hazardous materials. The proposed project includes residential land uses and would not use or store the type or volume of hazardous materials that would pose the risk of groundwater contamination. Therefore, impacts to groundwater quality would be less than significant.

Mitigation Measures: No mitigation measures required.

Impact HYDRO-4: Development of the site would not substantially alter the existing drainage pattern of the project site or area in a way that would result in on- or off-site flooding or soil erosion. (*Less than Significant*)

The proposed project is the development of a residential community on an existing developed site that was until recently used as a hospital. The project site is currently developed with 85 percent impervious surfaces including asphalt, concrete, and buildings. The remaining 15 percent of the project site is landscaping and is pervious to water infiltration. The majority of the buildings on the site are vacant due to the relocation of the hospital. The only occupied buildings are located on Parcel 3 and consist of approximately 30,000 square feet of medical office/administrative uses. The proposed project would

redevelop the project site with a residential development that would reintroduce impervious surfaces on the site, with 9 acres of open space that would consist of pervious surfaces. Upon project completion, approximately 66 percent would be impervious and 34 percent pervious. The existing and after-project quantities of stormwater runoff from the site were calculated by the project engineer. The pre-project runoff from the project site is 20.58 cubic feet per second (cfs) and the post-project runoff would be 18.79 cfs. This 8.7 percent reduction in the volume of stormwater runoff is due to an increase in pervious surfaces on the site after project buildout. The project complies with and exceeds the requirements of C.3.f provisions of the County-wide NPDES permit, since it reduces the runoff of the site compared to existing conditions.

All stormwater runoff on the site would be collected through 12-, 15-, and 18-inch storm drain lines located throughout the project site. All storm water runoff on the site would be collected through these storm drains and would be carried to the City's existing municipal storm drainage that discharge off site. The on-site storm drain system has been designed to convey runoff such that on-site flooding does not occur. As the quantity of stormwater runoff after project buildout would be less than the existing condition and the off-site storm drain lines in Kaiser Drive would be upgraded to an 18-inch-diameter line designed to accommodate stormwater runoff from the project site, off-site flooding would not occur. Therefore, impacts would be less than significant.

Mitigation Measures: No mitigation measures required.

4.6.4.5 Cumulative Impacts and Mitigation Measures

Lands designated for development in the project vicinity are all largely developed. The majority of development in the project vicinity and in the rest of the city of Santa Clara is expected to consist of redevelopment of existing developed properties. Therefore, new development within the city is not expected to generate more site runoff than the runoff that results under current conditions. As discussed under **Impact HYDRO-4**, the redevelopment of the proposed project site would generate less runoff than under existing conditions. Because overall runoff would not increase and is in fact expected to decrease slightly, the changes in runoff in the city as a result of cumulative development are unlikely to result in erosion and sedimentation effects on the creeks that receive the runoff discharged by city storm drains. Furthermore, all new development, including the proposed project, would be required to comply with the conditions of the County-wide NPDES permit for municipal storm drain systems. The permit requires all new development to incorporate design measures and controls that would improve the quality of stormwater that is discharged into the storm drain system. As a result, future runoff from new or redeveloped sites is expected to have improved water quality compared to the runoff from existing development. Therefore, the proposed project, in conjunction with other approved and proposed projects

would not result in a significant cumulative impact on surface water quality. Furthermore, all projects would be required to comply with the policies and programs in the City of Santa Clara General Plan. According to the general plan, these policies and programs are designed to reduce runoff and improve percolation in the city.

Similarly, the proposed project, in conjunction with other approved and proposed projects (as defined in the WSA), would not result in a significant cumulative impact on groundwater resources, either through extraction of groundwater or through reduced recharge. As stated above, all approved and proposed projects would comply with the general plan and improve percolation of stormwater where feasible. Therefore, recharge of the groundwater basin should not be adversely affected.

Cumulative projects, including the proposed project, would be supplied potable water by CSC which relies on a combination of surface and groundwater sources for water supply, with approximately half of the water used in the City obtained from groundwater wells. The quality, supply, and management of the local groundwater basin is monitored by the SCVWD and summarized in Appendix E, Groundwater Management Plan of the 2005 SCVWD UWMP. This plan protects groundwater quality, monitors groundwater extraction, and promotes groundwater recharge to ensure that groundwater does not exceed the annual 200,000 acre-feet withdrawal limit. Furthermore, the City's UWMP and SCVWD UWMP have projected potable water demand and supply through 2030 (see **Section 4.13, Utilities and Service System**). According to these projections and as evaluated in **Impact HYDRO-2**, the City and SCVWD have enough supply to meet the projected demand without depletion of groundwater resources. Therefore cumulative development would not result in significant cumulative impact to the Santa Clara Valley Water Subbasin.

4.6.5 REFERENCES

City of Santa Clara. 2003. "Environmental Quality Element," 2000 – 2010 General Plan.

City of Santa Clara. 2003. Water Service and Use Rules and Regulations.

City of Santa Clara. 2008. *900 Kiely Boulevard Development Application – Water Supply Assessment for Compliance with California Water Code Section 10910*, City of Santa Clara Water and Sewer Utilities, CA. August.

City of Santa Clara Water Utility. 2005. *Urban Water Management Plan*.

City of Santa Clara. 2008. *900 Kiely Boulevard Development Application – Water Supply Assessment for Compliance with California Water Code Section 10910*, City of Santa Clara Water and Sewer Utilities, CA. August.

Johnson, B. 2005, Diazinon and pesticide-related toxicity in Bay Area urban creeks – water quality attainment strategy and TMDL – proposed basin plan amendment and staff report: California Regional Water Quality Control Board San Francisco Bay Region, 132 p. + appendices.

Santa Clara Valley Water District. 2005. *Urban Water Management Plan*.

San Francisco Regional Water Quality Control Board. 2006. *Water Quality Control Plan for the San Francisco Bay Basin*.

US Environmental Protection Agency “Listed Water Information.” <http://oaspub.epa.gov/tmdl>. 2007